

The Role of Gas in the Italian Electric Sector

Paris, June 7th 2018



ABOUT SORGENIA – 2017 HIGHLIGHTS

Founded in 1999 with the liberalization of the energy market, Sorgenia is one of the main Italian energy operators within the energy supply chain

Electricity sales:
4 TWh

Revenues:
1.4 EUR bn

Sorgenia operates in several energy market segments:

- Power generation
- Development of geothermal and mini hydro power generation
- Purchasing of natural gas
- Energy management and trading
- Power and gas sales to end customers
- Development of energy services

Gas portfolio:
1.4 bcm

EBITDA:
160 EUR mn

Capacity installed:
4.4 GW

Net Financial Debt:
0.715 EUR bn

Customer served:
~220k

Employees:
~300

SORGENIA GROUP POWER PLANTS

SORGENIA'S PLANT	TECHNOLOGY	COMMERCIAL OPERATION DATE	INSTALLED CAPACITY 100% (MW)
Lodi	CCGT ¹	2011	801
Termoli	CCGT ¹	2006	777
Aprilia	CCGT ¹	2012	787
Modugno	CCGT ¹	2010	810

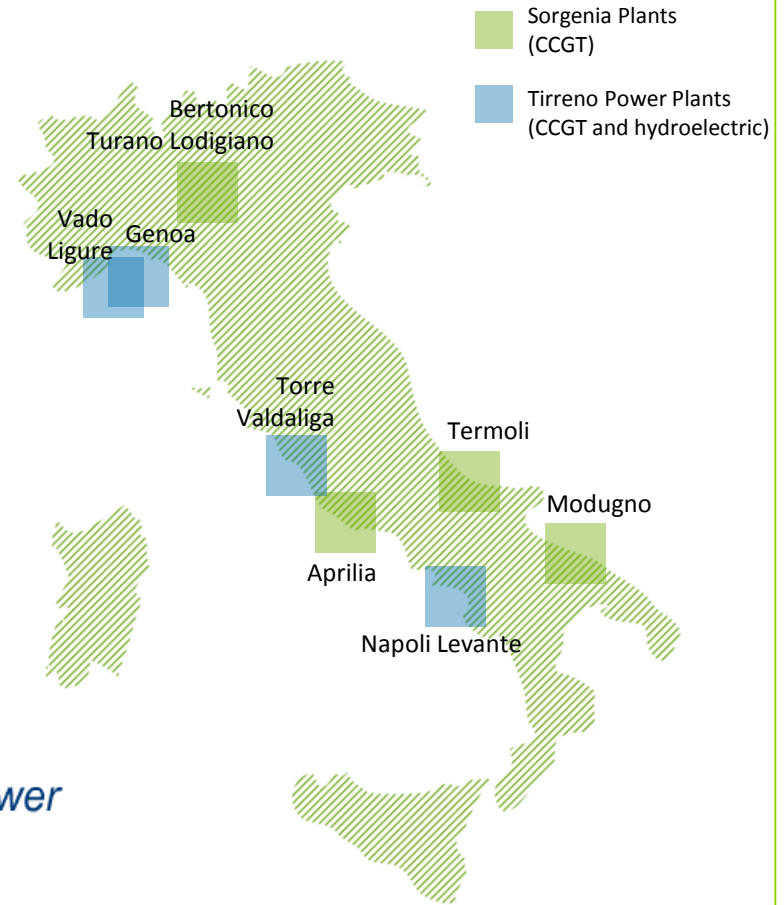


4,4 GW

100%

Pro-rata at 50%

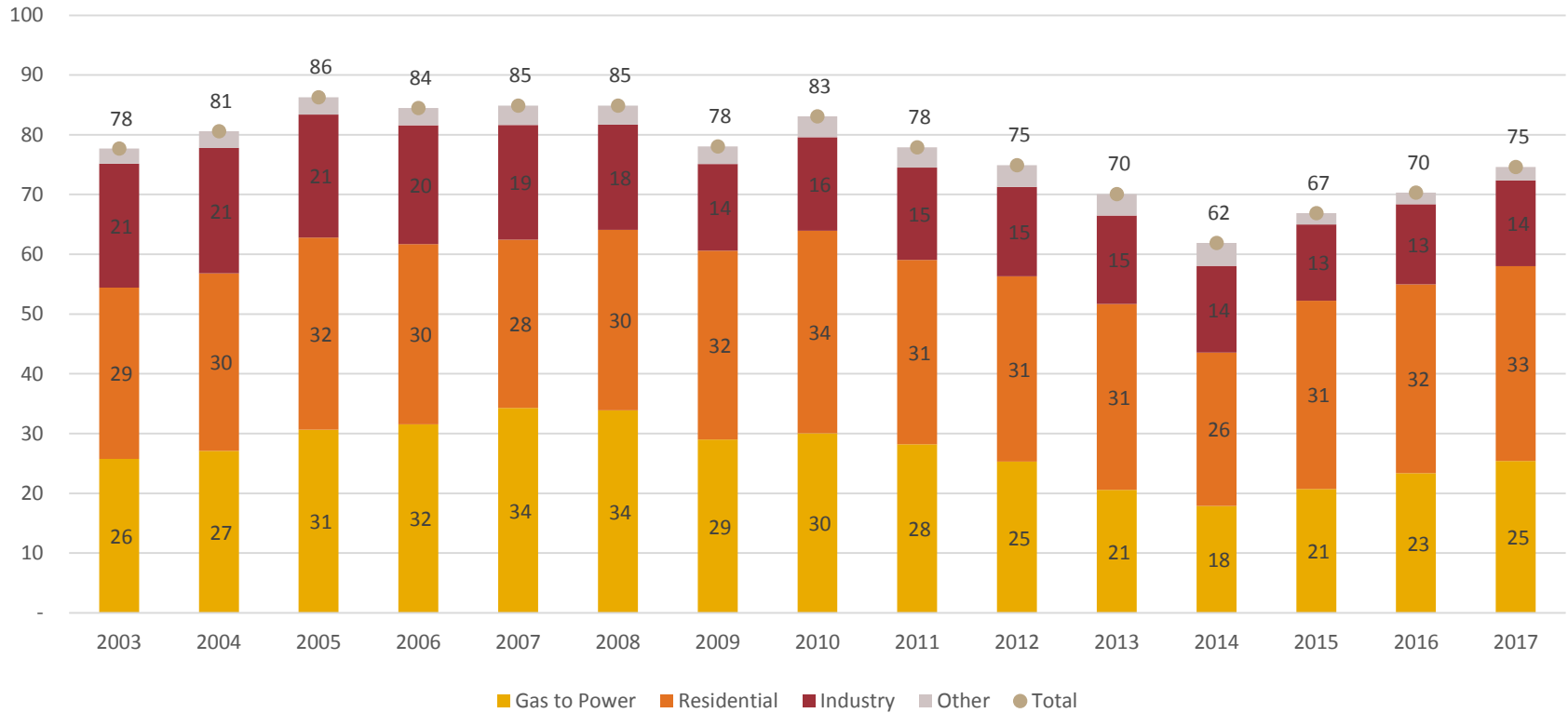
TIRRENO POWER'S PLANT	TECHNOLOGY	COMMERCIAL OPERATION DATE	INSTALLED CAPACITY 100% (MW)
Vado Ligure	CCGT ¹	2007	793
Torre Valdaliga	CCGT ¹	2005	1,176
Napoli Levante	CCGT ¹	2009	401
Genoa	Hydroelectric	Miscellaneous	75



An environmentally friendly fleet, recently built and well distributed across Italy, able to fully exploit opportunities in the Italian energy market

GAS DEMAND IN ITALY

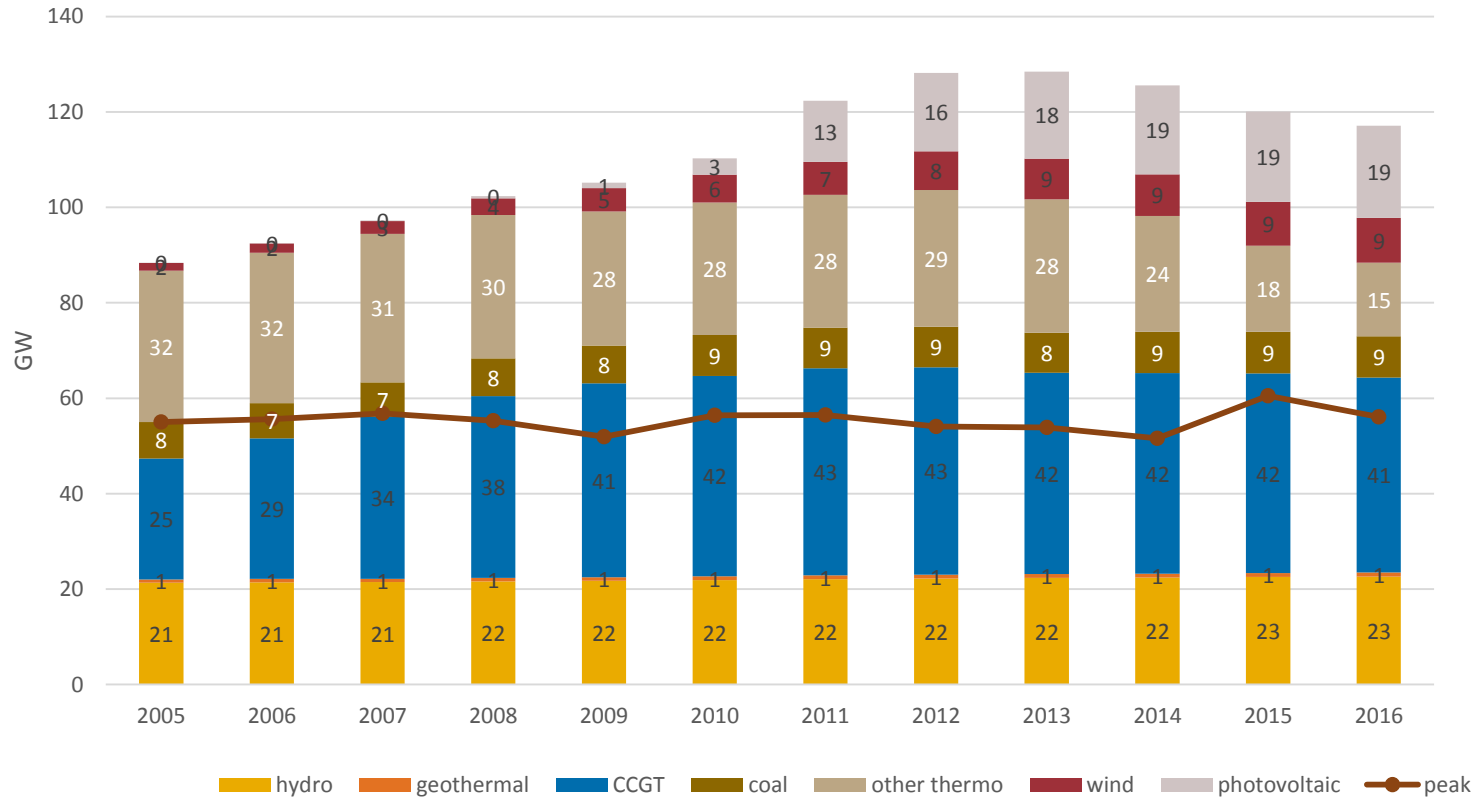
Evolution of Gas Demand by Sector (Bcm)*



- Gas demand in Italy is driven by the thermoelectric sector
- Demand is recovering but is still approximately 10 Bcm behind 2005-2008 peaks

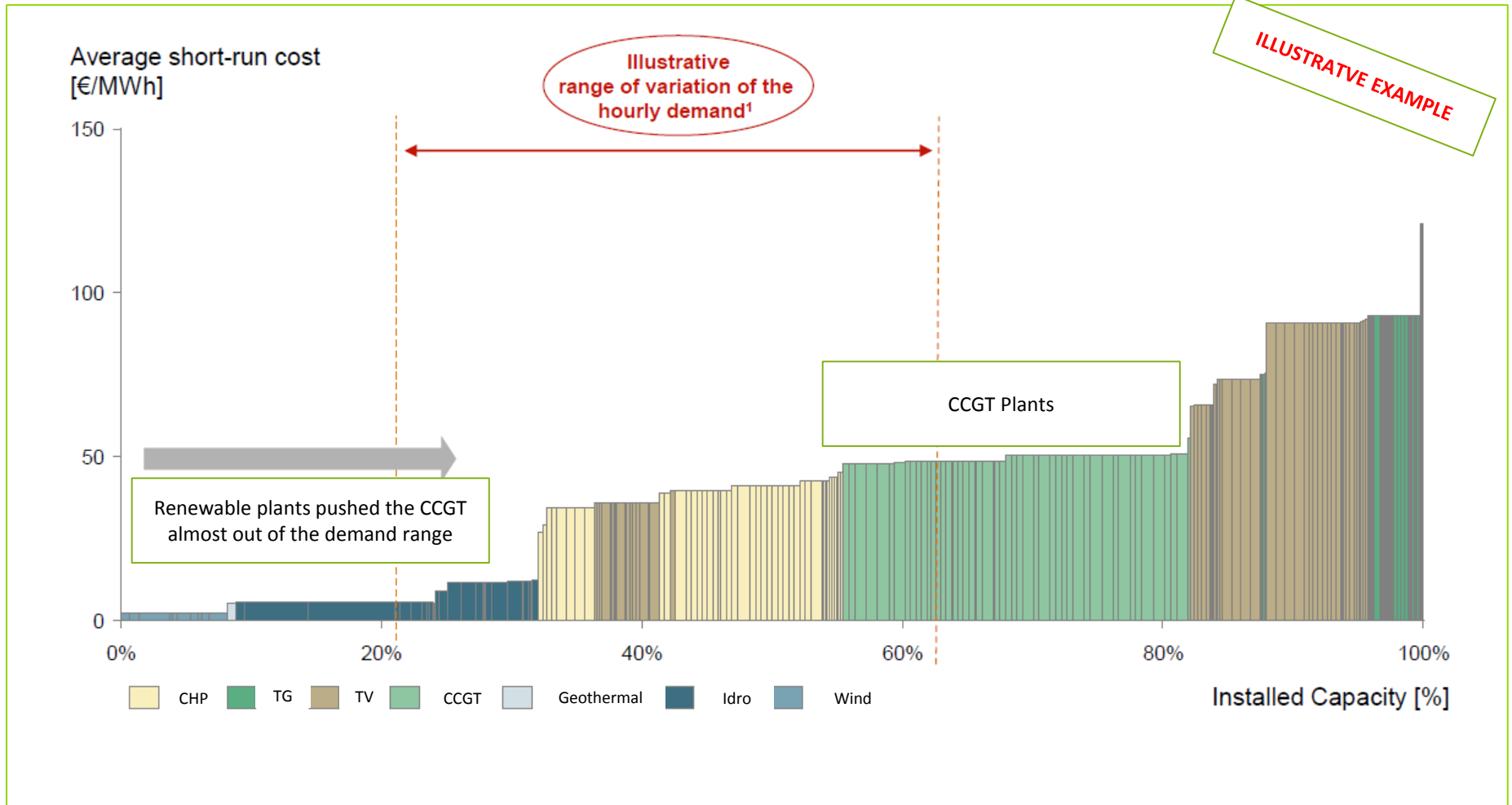
POWER CAPACITY IN ITALY

Evolution of Installed Capacity and Peak Demand*



- Strong increase of capacity from CCGT plants from 2005 to 2010, driven by low reserve margins (difference between peak demand and available capacity)
- Strong investments in renewable plants from 2010 to 2015 mainly driven by incentives

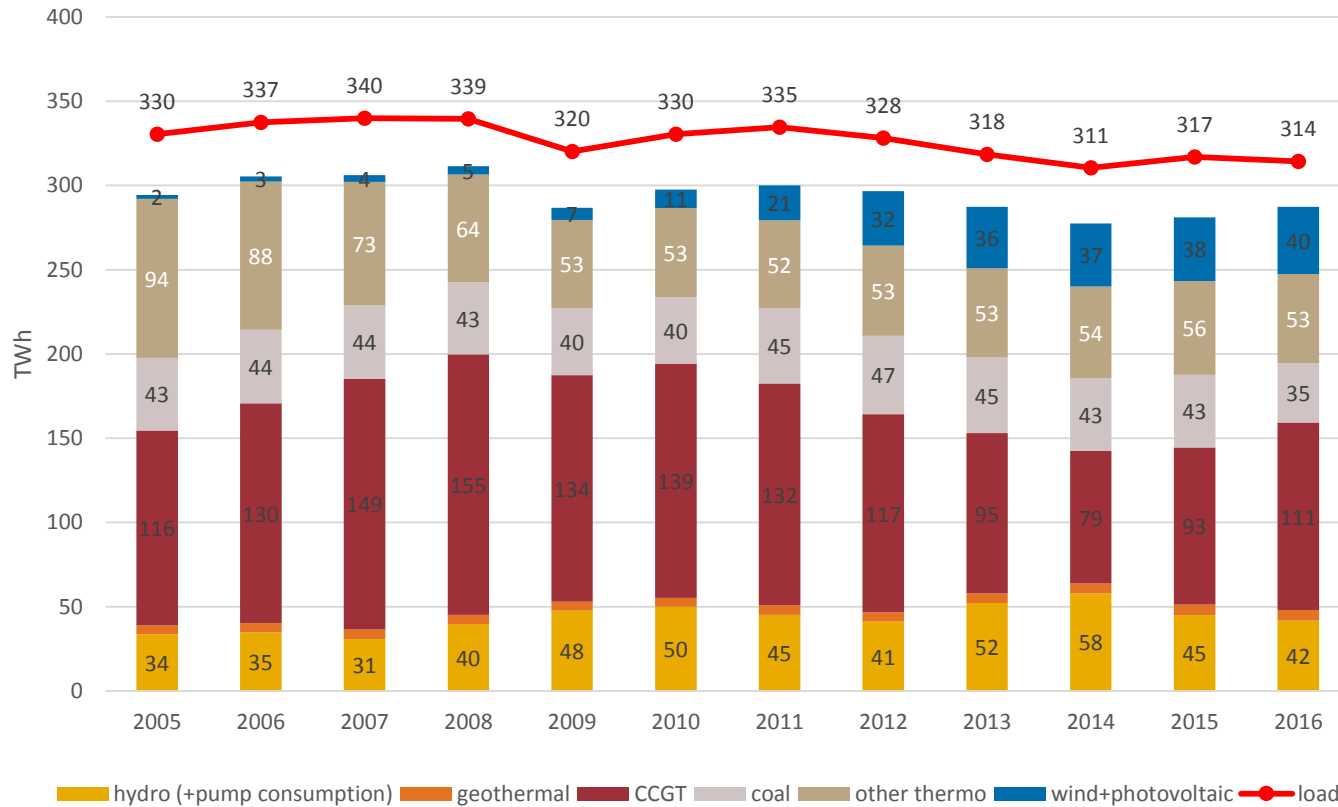
MERIT ORDER OF ITALIAN POWER PLANTS



Renewable plants pushed CCGT plants to become marginal in most of the hours whereas coal plants have not been affected

POWER PRODUCTION IN ITALY

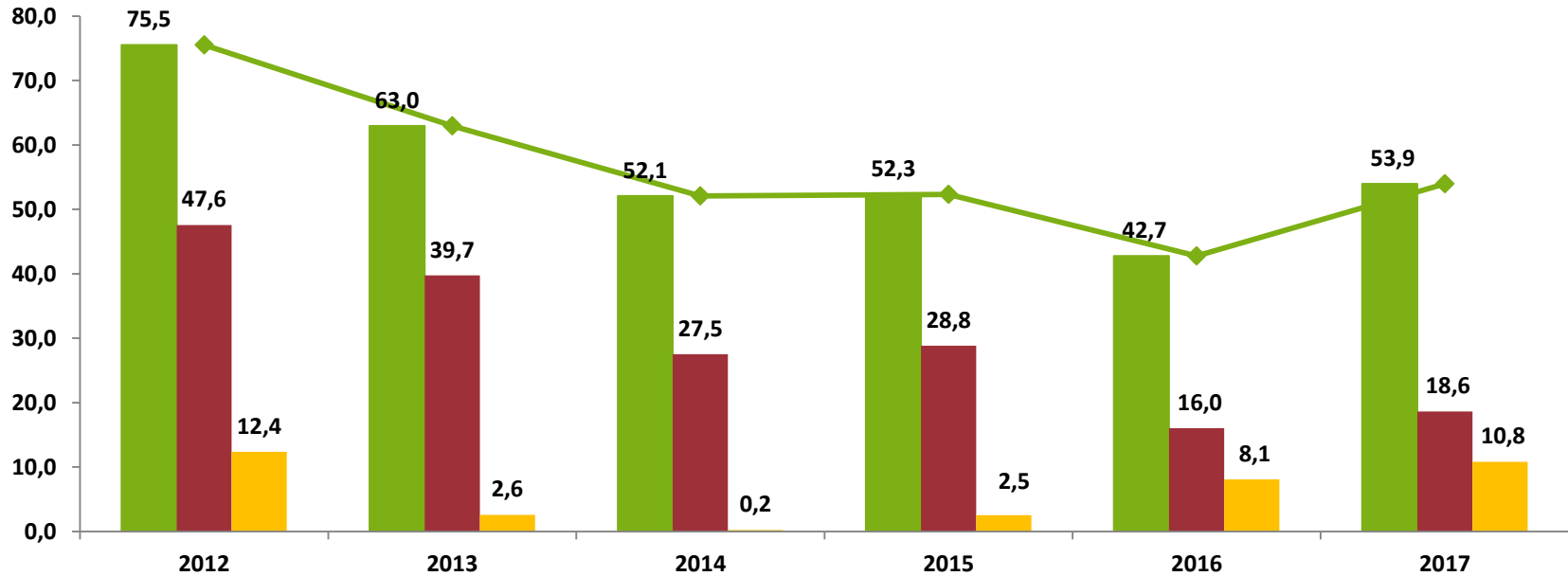
Evolution of Power Production and Demand*



- Power demand has been declining in the last ten years but is recently showing some signals of recovering
- Wind and photovoltaic production outpaced gas production while coal production remained stable (except for 2016)
- The recovery of gas in the last 2-3 years is related to the increase of demand and in 2016 to the decline of coal production and of import from France due to outages of nuclear plants

EVOLUTION OF POWER MARGINS

Evolution of Margins for Hydroelectric, Coal and CCGT Plants (EUR/MWh)*



Load factor CCGT
Gruppo Sorigenia



■ Hydro plant margin (1)
 ■ Coal plant margin (2)
 ■ CCGT Margin (3)
 ◆ Power price (PUN)

(1) The hydro plant margin does not incorporate any variable cost and therefore it can be assumed to be equal to power price (PUN)
 (2) Clean Dark Spread (CDS) = PUN – coal price - CO₂ with an efficiency rate of 40%
 (3) Clean Spark Spread (CSS) = PUN – gas price - CO₂ with an efficiency rate of 53%

Day Ahead Energy Market (MGP)

- Energy market based on system marginal price mechanism
- Highly competitive market
 - ✓ Different prices in different zones (Italy is split in 6 market zones)
 - ✓ Low margins except in peak demand periods
 - ✓ CCGT plants compete among themselves

Ancillary Service Markets (MSD)

- Markets in which plants sell their availability to increase or decrease their load
- Unpredictable markets which work on a pay-as-bid basis and in which demand is set by the Network Operator considering a number of factors:
 - ✓ Network constraints
 - ✓ Production of renewables
 - ✓ Demand and production profiles of plants in specific areas
- With the growth of renewable production, the MSD has become more and more attractive especially for flexible CCGT plants

WHAT IS GOING ON?

Recent changes affecting gas demand in the thermoelectric sector

- Improvement in the liquidity of the wholesale market (PSV): plants can relatively easily buy gas on a day by day basis according to their production schedule and hedge the «clean spark spread» on forward markets
- Changes in the transportation rules: tariffs are more «flexible» in line with the new «load profile» of gas plants
- Alignment of power prices with neighbour countries increased «contendible» demand for CCGT plants

Major changes for the future

- Development of Italy into the Southern Europe gas hub: Italy gas prices still maintain a premium on TTF prices
- Decarbonization/ Co2: phase-out of coal plants
- Capacity Market: mechanism approved by EU Commission in February 2018 which should stabilize the stream of revenues for existing power plants and give long term signals to new investments